Preparing for the AP Macroeconomics Test

Exam Content  
  
The AP Exams in economics were introduced in 1989. The AP Macroeconomics Exam tests knowledge of topics included in a one-semester introductory college course, including basic economic concepts; measurement of economic performance; national income and price determination; financial sector; inflation, unemployment, and stabilization policies; economic growth and productivity; and open economy. The following table reflects the approximate percentage of the multiple-choice section of the exam devoted to each content area:

|  |  |
| --- | --- |
| 8-12% | basic economic concepts |
| 12-16% | measurement of economic performance |
| 15-20% | financial sector |
| 20-30% | inflation, unemployment, and stabilization policies |
| 10-15% | national income and price determination |
| 5-10% | economic growth and productivity |
| 10-15% | open economy: international trade and finance |

The free-response questions in Section II of the exam generally ask students to analyze a given economic situation and present and evaluate general macroeconomic principles. Students are expected to write well-organized and analytical essays and to include explanatory diagrams that clarify their analysis. Students may be required to interpret graphs that are provided as part of the questions or to draw their own graphs as part of their answers. All graphs should be clearly labeled. Generally, the longer essay (50 percent of the free-response score) requires students to interrelate several content areas, while the two shorter essays (together, 50 percent of the free-response score) typically focus on a specific topic in a given content area.

Structure of Test

About the Exam

The exam is 2 hours and 10 minutes long, and includes a multiple-choice section and a free-response section.

Section I: Multiple-Choice

You'll have 70 minutes to complete the 60 question multiple-choice section.

Total scores on the multiple-choice section are based on the number of questions answered correctly. Points are not deducted for incorrect answers and no points are awarded for unanswered questions.

Section II: Free-Response

You'll have 60 minutes for the free-response section, including a mandatory 10-minute reading period. During the reading period, use the green insert to sketch graphs, make notes, and plan your essays. In your final essay answers, clearly label all graphs. After you finish the reading period, you'll have 50 minutes to complete one long and two short essay questions. Fifty percent of the section score is based on the long essay while each short essay contributes one-quarter to the free-response score.

The essays usually require that you link two or more content areas, analyze an economic situation, and evaluate general macroeconomic principles. The best essays demonstrate analytical and organizational skills, and when needed, incorporate diagrams that clarify the analysis. Some questions include graphs that you'll have to interpret while some others ask you to provide the graphs.

Scoring the Exam

Wondering how your final score will be tallied? For the Macroeconomics Exam, the multiple-choice section accounts for two-thirds of the grade and the free-response section is the final one-third.

Scoring Changes

Beginning with the May 2011 AP Exam administration, there will be a change to the way AP Exams are scored. Total scores on the multiple-choice section will be based on the number of questions answered correctly. Points will no longer be deducted for incorrect answers and, as always, no points will be awarded for unanswered questions.

Things about Multiple Choice Portion

* First 10 tend to be much easier
* Last 10 to 20 are more difficult questions
  + Combine that with time crunch and testing fatigue and it creates real challenges for students
* Key is to know the answer without looking at the 5 choices
  + As you read the stem, formulate the answer you are looking for in the choices
* 2 types of MC questions
  + Vocab – incredibly obvious IF you know the vocabulary
  + Connection – multiple layers of information required and normally an application of this information

Examples of 2 types of MC (vocabulary based)

1. Suppose that the consumer price index rises from 100 to 200. From this information we may conclude that
   1. each person’s real income is cut in half
   2. consumer incomes are doubled
   3. the prices in an average consumer’s market basket are doubled
   4. all consumer goods prices are doubled
   5. all prices in the economy are doubled

\*If you know what the CPI is and the definition, you know to look for the market basket, C\*

1. Suppose that a national government increased deficit spending on goods and services, reducing its supply for loanable funds. In the long run, this policy would most likely result in which of the following changes in this country?

Interest Rates Investment

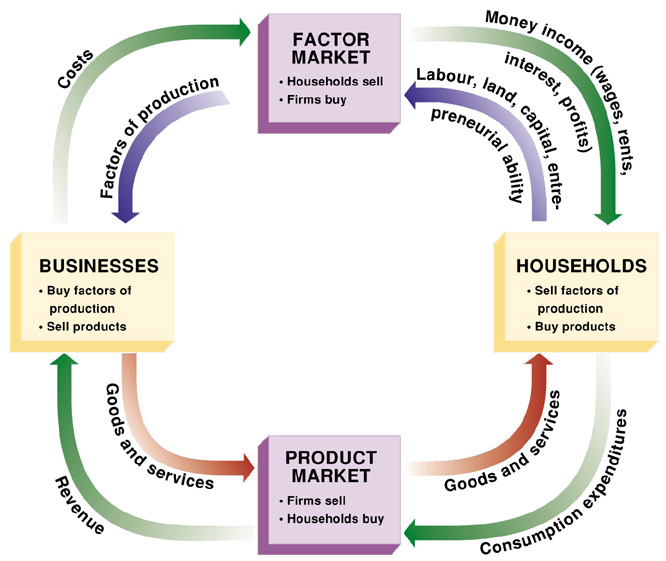
* 1. decrease decrease
  2. decrease increase
  3. increase decrease
  4. increase no change
  5. no change increase

\*You would first need to know why deficit spending mattered, then know how an increase in demand would affect the loanable funds. Next, you would then need to know how interest rates would be affected and how investment would change based on that information.\* The correct answer is C

What are the key models for the test?

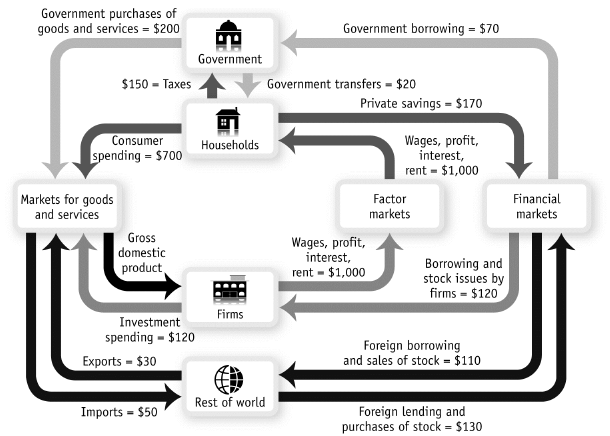
* Must know:
  1. Circular Flow Model
  2. Production Possibilities Curve (PPC)
  3. Supply and Demand
  4. Loanable Funds Market
  5. Aggregate Demand and Supply (short-run and long-run)
  6. Money Market
  7. Phillips Curve
  8. Foreign Exchange Market
* Usable dependent on student preferences
  1. Investment Demand Curve, Bond Market, Keynesian (not drawn, but must be able to interpret)

Model #1: Circular Flow Model of Economic Activity

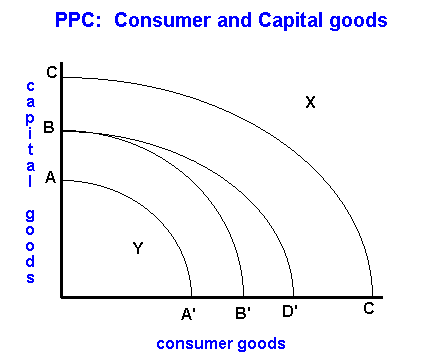
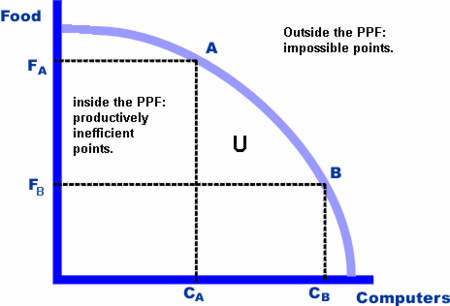


The basic circular flow of income model consists of seven assumptions:

1. The economy consists of two sectors: households and firms.
2. Households spend all of their income (Y) on goods and services or consumption (C). There is no saving (S).
3. All output (O) produced by firms is purchased by households through their expenditure (E).
4. There is no financial sector.
5. There is no government sector.
6. There is no overseas sector.
7. It is a closed economy with no exports or imports.

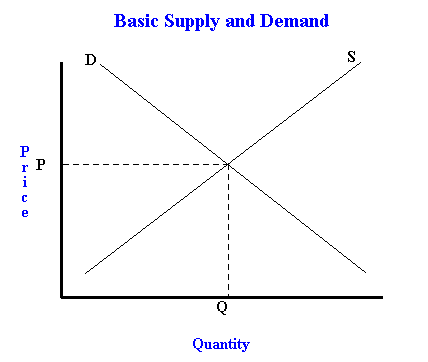
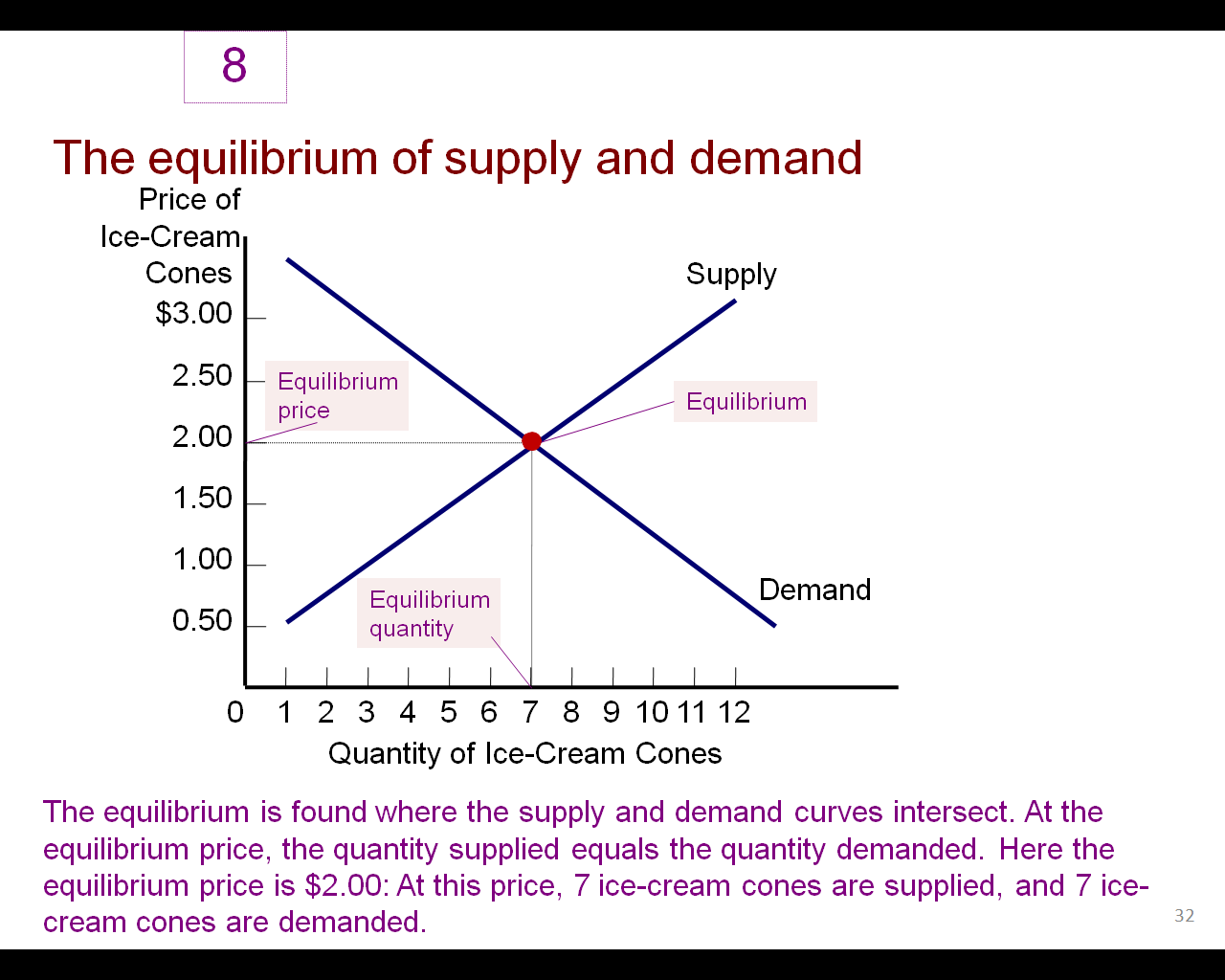


Model #2: Production Possibilities Curve



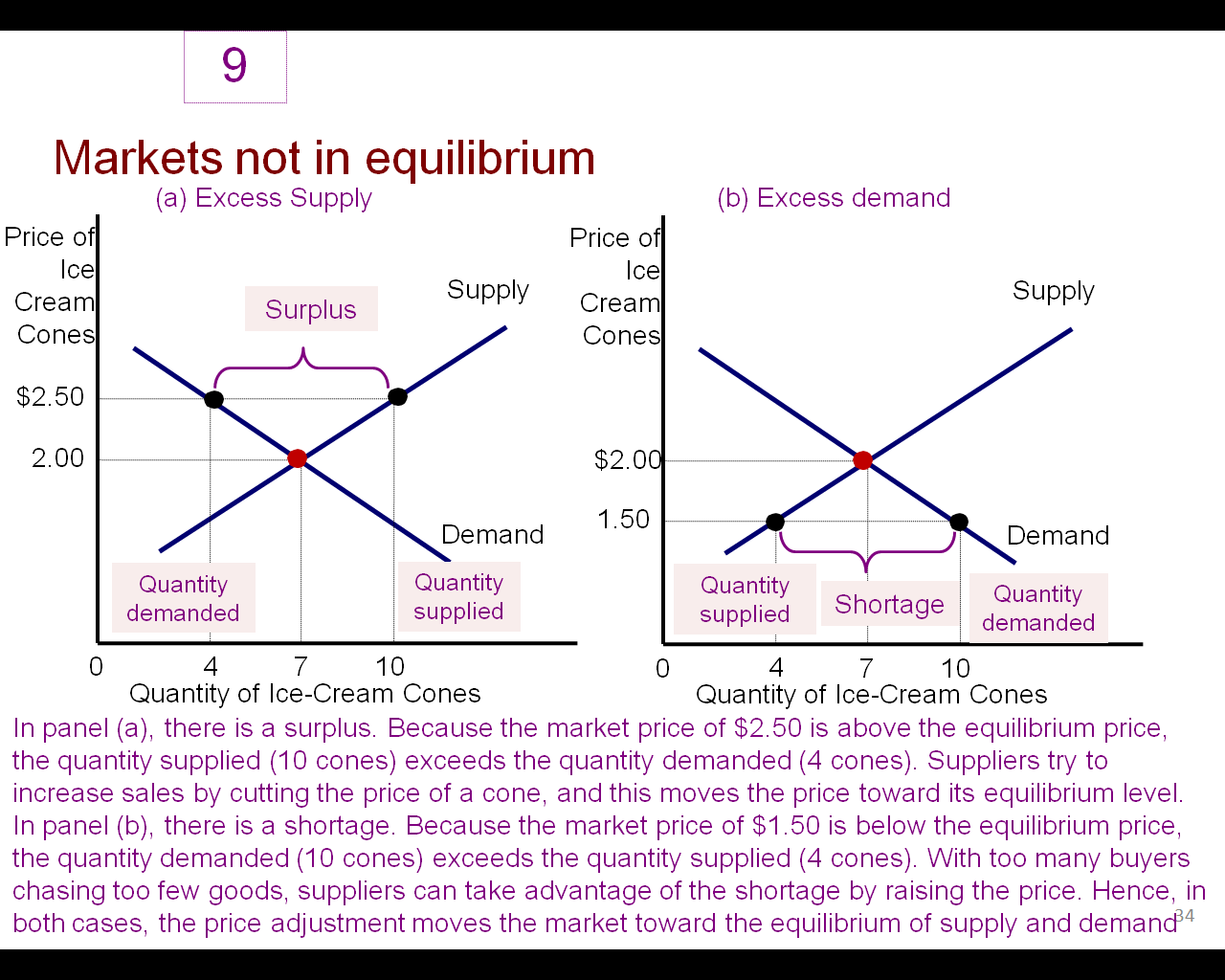
* Shows the relationship for an entity as they make 2 products
  + Also shows a maximum level of production with current resources
* Curve shifting out = economic growth
* Point outside = unattainable (potential future growth)
* Point Y = underutilization of resources
* PPC = similar to LRAS (both represent most that can be produced with current factors of production)

Model #3: Supply and Demand Graph

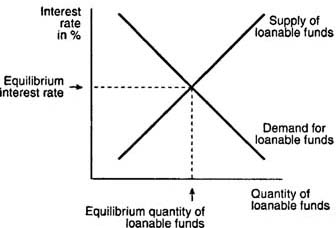
* Price of the item on the y – axis (differs, but always the price of the item)
* Quantity of item on x (this is where you can tell what you are looking at)
* Make sure you can differentiate between a change in Demand and Supply (shift – things not having to do with price change of the actual product) and change in quantity demanded and supplied (movement along because of price change)
* Increase in D/S shift to the right
* Decrease in D/S shift to the left

Markets Not In Equilibrium



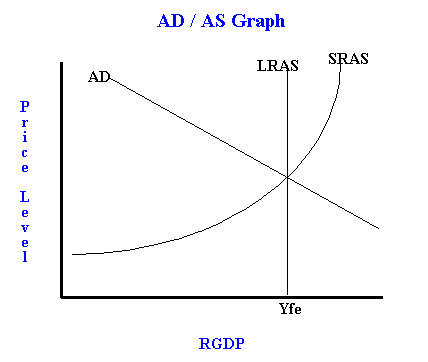
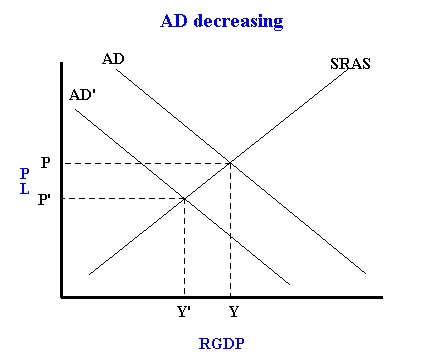
In panel (a), there is a surplus. Because the market price of $2.50 is above the equilibrium price, the quantity supplied (10 cones) exceeds the quantity demanded (4 cones). Suppliers try to increase sales by cutting the price of a cone, and this moves the price toward its equilibrium level. In panel (b), there is a shortage. Because the market price of $1.50 is below the equilibrium price, the quantity demanded (10 cones) exceeds the quantity supplied (4 cones). With too many buyers chasing too few goods, suppliers can take advantage of the shortage by raising the price. Hence, in both cases, the price adjustment moves the market toward the equilibrium of supply and demand

Model #4: Loanable Funds Market Graph



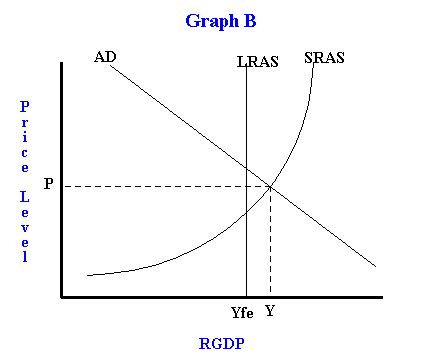
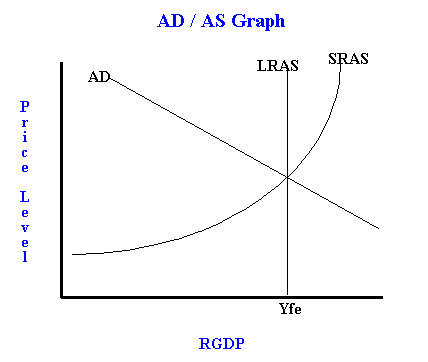
* Widely used graph can be connected to fiscal policy, monetary policy, and capital flow
* Y-axis is real interest rate
* X-axis is the quantity of loanable funds (money that is capable of being borrowed)
* D = any entity that wishes to borrow money (households, businesses, and government when it runs a deficit)
* S = the volume of savings by a variety of entities (can be thought of as the money in banks that they can loan out)
* Can be connected to Investment Demand Curve

Model #5: AD / AS graph

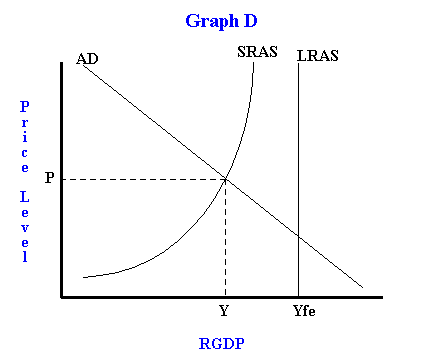
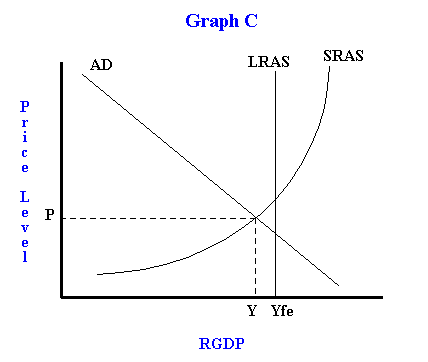


* One of the most important graphs used in the course
* AD = potential consumption on new goods and services by households, businesses, government and foreign entities
* SRAS = capabilities of production at a variety of price levels (takes into account cost of labor)
* LRAS = capabilities of production in economy (only looks at capital equipment, ideas, labor quality and quantity, and resources)
* Yfe = output at full employment

Possible Economic Situations

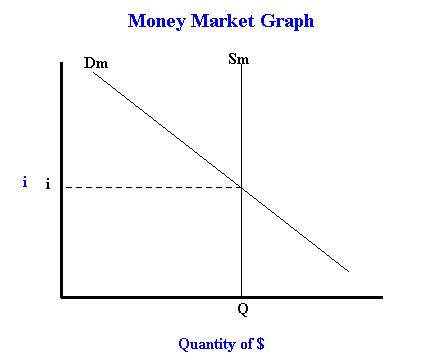
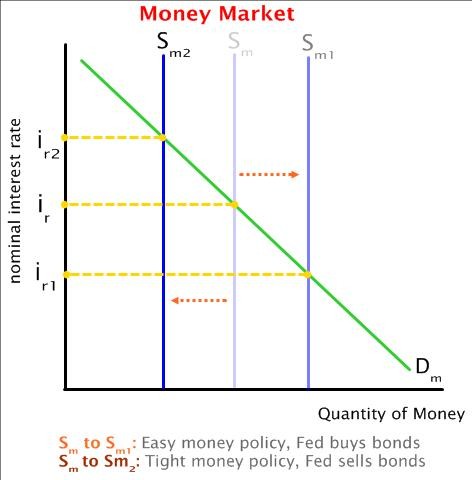


Full employment/Natural Rate of Output Inflation = Over-production



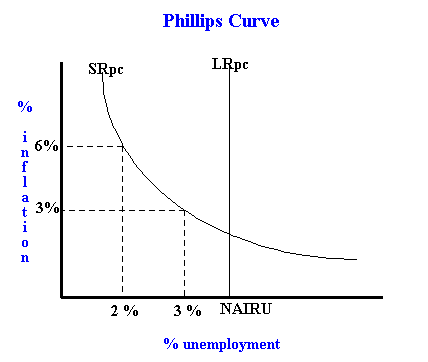
Recession /Output is Less Than Full employment Stagflation: SRAS has Decreased And caused PL  
 to increase And RGDP To decrease

Model #6: Money Market Graph



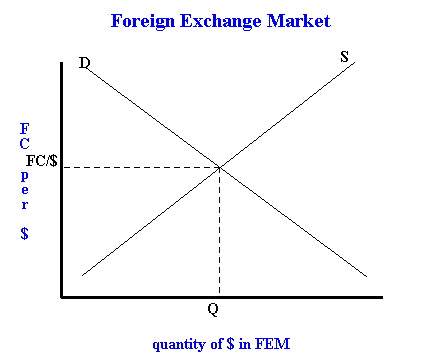
* Almost always attached to the FED and Monetary policy questions
* Demand for money
  + Transaction, precautionary and speculative reasons to hold money
* Supply of money
  + Influenced by tools of the FED: OMO, discount rate, and reserve requirement
* Nominal interest rate is the “price” of money in circulation
* Follows same basic rules for changes as the supply and demand graph
* Can be “connected” to Investment Demand Curve

Model #7: Phillips Curve



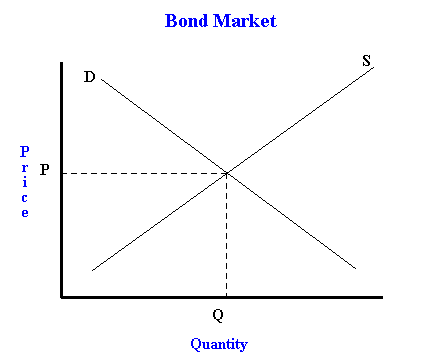
* Has gained increased attention by the College Board
* An indirect way of assessing students knowledge about the AD / AS model
* Is basically the mirror image of the AS curves
* NAIRU = non-accelerating inflation rate of unemployment (basically the natural rate of unemployment)
* How is the AD / AS model connected to the Phillips Curve?
  + AD changes cause changes to price levels and unemployment (one gets better while the other gets worse)
  + This leads to movement along the Short run Phillips curve
  + AS changes affect price levels and unemployment in the same direction (either they both get better or both get worse), this causes a complete shift of the Phillips Curve
  + If you put the AD / AS model and Phillips Curve side-by-side with a “mirror” between them, shifts of the AD / AS will be “mirrored” by the shifts in the Phillips Curve
    - An increase in SRAS (shift towards the mirror to the right), will cause the SR Phillips curve to move towards the mirror (to the left)
  + LRAS and LR Phillips Curve behave the same way as the Short run AS and Phillips Curve

Model #8 Foreign Exchange Market



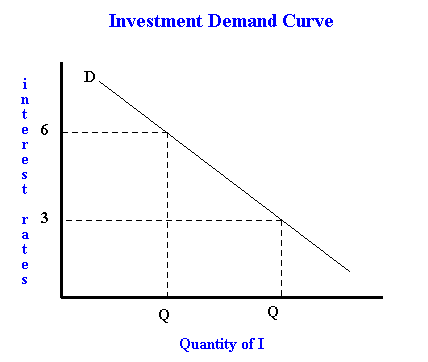
* Basic demand and supply graph looking and the demand for $ and the supply of $ in the foreign currency (or exchange) market
* Increased demand for a currency will lead to appreciation of currency (can draw a supply decrease too)
* Increased supply occurs when people “dump” a currency to attain another currency
  + This causes a decrease in the value of the currency

Model #9 Bond Market



* Rarely required as a drawn graph
* Rule: Bond prices are inversely related to interest rates
* Adds depth to the reasons that interest rates change
* Expansionary fiscal policy (G up, AD up) leads to deficit spending, which causes the government to sell bonds (increasing the supply in this graph), causing the price of bonds to drop and the interest rates in the market to rise, then Consumption and investment spending decrease (AD slightly down)- this is crowding out
* Can also be used with FED and monetary policy
  + Open market operations changes the supply of bonds in the market

Model #10 Investment Demand Curve



* Shows the relationship between the interest rates (real or nominal) and the quantity of Investment spending in the economy
* Can be “connected” or linked with the MM and LF graphs
* Shifts of this curve can be caused by:
  + Changes in business conditions
  + Profitability expectations

Economic Rules

Rule # 1

1. Too much money chasing too few goods creates inflation; too little money chasing too many goods creates deflation.
   * Monetary Equation of Exchange
   * MV = PY
     + M=money supply, V=velocity of money, P= price level (inflation), Y = real GDP
   * In the long run, monetary policy doesn’t change the resources a nation has, so therefore there is no bearing on long run output levels

Rule # 2

1. A higher-valued dollar on international currency markets discourages US exports; a lower-valued dollar encourages exports.
   * Huge concept
   * When the $ appreciates, our dollar will stretch further in foreign markets (imports increase), but foreign consumers can buy less US goods (exports decrease)
   * This causes AD to decrease

Rule # 3

1. Increases in the demand for money and cash by the public raises interest rates.
   * Increasing importance in both the money market graph and loanable funds graph
   * 3 types of demand for money: Transaction (related to price levels), Speculation (related to money as an asset), Precautionary (related to fear about the economy)
   * When you demand the money, you are essentially demanding cash instead of other forms of M1 and M2 money

Rule # 4

1. Higher interest rates discourage borrowing for investment and consumption; lower interest rates encourage borrowing.
   * Understand the cost of the item doesn’t change, but the amount of interest goes up (which increases the overall or “true” price of the item)

Rule # 5

1. The Federal Reserve can manipulate interest rates to try to stabilize the economy – this is called “monetary policy”.
   * Notice the word manipulate, they do not set the market interest rates (banks and customers do this)
   * 3 tools of MP
     + Open market operations (influences the federal funds rate)
     + Discount rate (overnight borrowing from banks and FED)
     + Reserve Requirement (% banks must keep in required reserves), this helps determine the money multiplier
   * Leakages in the money expansion – banks not loaning out all excess reserves, businesses not redepositing into banks, customers holding cash

Rule # 6

1. Pessimism about sales and profits reduce business investment.
   * True of household consumption also
   * Decreases the investment demand curve (an actual shift would occur)
   * I down = AD down = PL / Output down
   * I down = LRAS down = PPC down (notice that the SRAS doesn’t change because the current capital equipment is not removed), but if no new capital equipment is purchased, when the current equipment breaks-down, nothing is there to replace it

Rule # 7

1. Decreases in spending for consumption, investment, government purchases or exports can cause recessions, meaning reduction in output and increases in unemployment.
   * This is the AD formula
   * See AD/AS Curve

Rule # 8

1. The Federal Government (Washington DC) can alter its taxes and spending to try and stabilize the economy – this is called “fiscal policy”. Some fiscal policy takes place automatically (called automatic stabilizers) and some requires acts by Congress and the President (discretionary).
   * Automatic include: welfare payments, unemployment compensation, progressive tax structure
   * Regulations can also influence the economic situation, but regulations are not normally changed to change the economic situation

Rule # 9

1. There is short-run tradeoff between inflation and unemployment. Higher unemployment reduces inflation and lower unemployment increases inflation.
   * See short run Phillips Curve

Rule # 10

1. If inflation remains high for some time, people will begin to expect it. A wage-price spiral can develop that can keep inflation going despite changes in policy or the economy.
   * When AD is in the classical (inflationary area), workers will notice the higher prices in their lives
   * This causes workers to ask for raises
   * Because there are very few available workers, businesses grant the raises
   * The raises cause the cost of production to go up
   * Causing SRAS to shift to the left and causing higher prices and output to gravitate back to the Yfe point

Rule # 11

1. Sudden increases in resource prices or decrease in availability of resources can cause simultaneous recession and inflation (called stagflation).
   * Stagflation is a decrease in SRAS (also call cost-push inflation)
   * More resources tend to increase growth and reduce inflation.
   * SRAS increases, causing output and employment to increase and PL’s to decrease

Rule # 12

1. Federal budget deficits can crowd out business investment
   * As the government spends money it doesn’t have (creates deficit spending)
   * The government has to borrow money by issuing bonds
   * This increased demand for loanable funds leads to an increase in real interest rates
   * r going up causes less borrowing by businesses and less investment spending
   * The end result is a slight cancelling out of the AD increase that came with expansionary fiscal policy

Rule # 13

1. Higher interest rates can increase the value of the dollar in international currency markets.
   * Higher interest rates causes capital inflow
   * Foreign savers put their money in our market
   * This causes the demand for the $ to increase
   * Value of dollar appreciates

Rule # 14

1. Increases in productivity can lead to expansion with lower inflation.
   * Productivity is a nice thing, we can make more with the same amount of inputs
   * SRAS increases

What economic theories should I be familiar with?

* Dominant Two
  + Classical v. Keynes
  + Classical – free market approach with flexible wages and prices (Adam Smith, David Ricardo, etc.)
  + Keynesian – short term approach on fiscal policy solutions to recessionary issues (taxes and government spending
* Other ones that pop – up
  + Monetarists = MV = PY (relationship between money supply, velocity of money, price level, and GDP)
  + Supply-side (the goal of pushing out SRAS and LRAS combined with investment back into the economy)
  + Rational expectations: behaviors of society tend to be proactive, resulting in no change in real output variables

Important Concepts Per Unit

**Unit I. Basic Economic Concepts**

*Scarcity, Choice and Opportunity Costs*

**Basic Economic Problem**

1. Scarcity - society’s material wants, that is, the material wants of its citizens and institutions, are virtually unlimited and insatiable. Economic resources—the means of producing goods and services—are limited or scarce.
2. Opportunity cost – the cost of the next best use of time, money or resources. What you give up.

**Economic Goals**

1. Economic growth – produce more and better goods and services
2. Full employment – suitable jobs for all citizens who are willing and able to work
3. Economic efficiency – achieve the maximum production using available resources
4. Price-level stability – avoid large fluctuations in the price level (inflation + deflation)
5. Economic freedom – businesses, workers, consumers have a high degree of freedom in economic activities
6. Equitable distribution of income – try to minimize gap between rich and poor
7. Economic security – provide for those who are not able to earn sufficient income
8. Balance of trade – try to seek a trade balance with the rest of the world

**Factors of Production**

1. Land – all natural resources usable in the production process
2. Capital – all manufactured aids to production (tools, machinery, equipment, and factory, storage, transportation, and distribution facilities used in producing goods and services
3. Labor – physical and mental talents of individuals available and usable in producing goods and services
4. Entrepreneurial ability – the entrepreneur 1) takes the initiative in combining the other resources to produce a good or service, 2) makes basic business-policy decisions, 3) is an innovator, and 4) is a risk bearer.

**Several objectives must be satisfied to reach full production:**

1. Full employment – use all available resources
2. Full production – use resources efficiently (productive efficiency – production in least costly way, allocative efficiency – production of goods and services most wanted by society)

**Production Possibilities Curve**

1. The production possibilities curve represents the combinations of maximum output that can be reached in the economy. It is a frontier because it shows the limit of output.
2. Anything under the curve is attainable, but involves inefficient use of resources. Anything outside the curve is unattainable with current resources.
3. Usually, the curve is some type of consumer goods versus some type of capital goods.
4. Each point on the curve represents a maximum output of the two goods. Different points on the curve mean different production combinations of the two goods.
5. The curve bows outwards because of the Law of Increasing Opportunity Cost, which states that the amount of a good which has to be sacrificed for each additional unit of another good is more than was sacrificed for the previous unit. The rationale for this law is that some economic resources are not completely adaptable to alternative uses, so the resources will yield less of one product.
6. Shifts in this curve can be caused by increases in resource supplies or advances in technology. Also, if an economy favors “future goods” (technology, etc), the curve will shift faster because of more economic growth.
7. Determinants for One must compare marginal benefits and marginal costs to determine the best or Production optimal output mix on the Production Possibilities Curve.

**II. Measurement of Economic Performance**

Gross Domestic Product

1. Gross Domestic Product Expenditures approach: GDP = C + I + G + NX (Expenditures Approach)
   1. C = personal consumption expenditures (durable consumer goods, nondurable consumer goods, consumer expenditures for services)
   2. I = gross private domestic investment (all final purchases of capital by businesses, all construction, changes in inventories)
   3. G = government purchases (government spending on products and resources)
   4. NX = net exports (exports – imports)

\*Some types of transactions do not involve purchasing of a final good or service, so they should not be counted in GDP. These include public transfer payments (social security, welfare, etc), private transfer payments (monetary gifts, etc), security transactions (stocks and bonds), and secondhand sales (they don’t reflect current production).\*

1. GDP growth The GDP growth rate is calculated with the formula GDP new – GDP old/GDP old x 100
2. If the growth rate is between 2-4%, it is considered “acceptable”.
3. Nominal vs. Real GDP Nominal GDP is sometimes inaccurate because if there is a lot of inflation, the actual GDP growth isn’t as high as the figures seem to say. Therefore, we have a measure of GDP that is adjusted for inflation: real GDP.
4. This is calculated by the formula Nominal GDP /Real GDP = Price index x100

Inflation

1. CPI This is a measure of inflation. It is calculated by the formula price in specific year
2. CPI = 100 price in base year/period
3. Inflation This is the increasing general level of prices from year to year.
4. The rate of inflation is calculated by the formula CPI new - CPI old/CPI old x 100 (Inflation Rate)
5. If the rate of inflation is less than 3 percent (and greater than 0 percent, of course), it is considered “acceptable”.

Types of Inflation

1. Quantity Theory – too much money in the economy causes price levels to increase and inflation to occur.
2. Demand-pull inflation: more spending than the economy’s capacity to produce. The excess demand increases the prices of the limited real output, causing prices to rise.
3. Cost-Push (Supply-side) inflation: Per-unit production costs (total input cost ÷ units of output) rise, reducing the amount of companies willing to sell products at the current price level. Then, supply decreases, causing the price level to increase.
4. Wage-price spiral As price level rises, labor will demand and get higher nominal wages. Businesses will agree, hoping to get back the money by increasing prices. Then, as prices increase even more, labor will find that it has a reason to demand even more wage increases, but that causes more prices increases, and so on.
5. Fighting inflation We can fight inflation by trying to reduce demand or by trying to prevent a wage-price spiral from getting out of hand. We can use either fiscal or monetary policy (means of doing so is explained later). Fiscal action will result in a budget surplus.

Real vs. Nominal Values

1. A Nominal value is an unadjusted value. A Real value is a nominal value adjusted for inflation.
2. Real Value = Nominal Value/Price Index (in decimal form)
3. Therefore, we can’t just look at nominal values when trying to determine the status of the economy. Since lots of inflation can lead to very high nominal values, we can get a false impression that the economy is doing well when the real value is perhaps even decreasing.

Inflationary Expectations

1. The effects of unexpected inflation are: It hurts people with fixed nominal incomes, since the money they earn isn’t worth as much anymore. It hurts people who save in fixed-value accounts It benefits debtors (borrowers) while hurting creditors (lenders).
2. The effects of inflation can be lessened if people expect it (anticipated inflation), since then they can get a chance to prepare for the damages that the inflation may cause.
3. For example, a person who has a fixed nominal income can try to adjust it if they know that its value is going to decrease. Many unions have labor contracts with cost-of living adjustment (COLA) clauses, in which workers’ wages increase if there is inflation.

Unemployment

1. Types Frictional – includes workers who are searching for jobs or waiting to take jobs in the near future. This unemployment is inevitable, since many workers switch to better jobs.
2. Structural – changes over time in consumer demand and technology change the “structure” of total demand for labor. Some skills will not be needed as much or become obsolete, and new skills will appear. This is a mismatch between job seekers’ skills and the skills needed for the job. This is also inevitable because the demand for labor will always change over time as new technologies arise.
3. Cyclical – this type of unemployment is caused by recession. People who are laid off because of decreased overall spending in the economy.
4. Full employment is NOT zero unemployment, as frictional and structural unemployment are regarded as unavoidable in an economy. Therefore, full employment means no cyclical unemployment, and the full-employment rate is equal to the frictional plus structural rates. It is also called the natural rate of unemployment. Solutions In order to decrease cyclical unemployment, we must try to increase overall spending in the economy so businesses find their inventories decreasing and so hire more people. We do this by increasing aggregate demand with fiscal or monetary policy.

Calculating Unemployment

1. Refers to unemployment in the labor force, not the whole population.
2. The labor force is total population – under 16 and/or institutionalized – people not in the labor force.
3. Unemployment rate = Unemployed/Labor Force x 100

Criticism of unemployment

1. The unemployment rate has been subject to some criticism.
2. First of all, part-time workers are counted as fully employed; however, some part-time workers are people who can’t get a full-time job because of recession. This tends to understate the unemployment rate.
3. Also, discouraged workers who are not actively searching for jobs anymore are not counted in the labor force. This understates the unemployment rate, especially in recession.
4. GDP Gap This is the amount by which actual GDP falls short of potential GDP (the GDP that can be attained at the natural rate of unemployment).
5. For example, if the actual rate is 6% and the natural rate is 4%, there will be a GDP gap of 4%.

**Unit III. National Income and Price Determination**

Aggregate Demand

These cause shifts in aggregate demand:

1. C (consumer wealth, consumer expectations, household indebtedness, taxes)
2. I (interest rates, expected returns on investment, business taxes, technology, degree of excess capacity)
3. G Government Spending
4. NX (National income abroad, exchange rates)

Aggregate Supply

These cause shifts in aggregate supply:

1. Input Prices (domestic resource availability [land, labor, capital, entrepreneurial ability], prices of imported resources, market power)
2. Productivity
3. Legal – institutional environment (business taxes and subsides, government regulation)

Differences in the Aggregate Supply Curve

1. AS Curve ranges Horizontal range – includes only real levels of output which are substantially less than full-employment output. A change in real output in this range won’t affect price level at all.
2. Vertical range – economy has already reached its full-capacity real output. Any increase in the price level at this range won’t affect real output at all.
3. Intermediate range – an expansion of real output is accompanied by a rising price level. The full-employment output is found in this range.

Multiplier Effect

1. The Multiplier Effect A change in aggregate expenditures causes a greater increase in GDP because the same money is used many times over. The multiplier determines how much larger the increase in GDP is.

**Unit IV. Financial Sector**

Money

1. Medium of Exchange - is any medium that can be exchanged for goods and services and is used as a measure of their values on the market, including among its forms a commodity such as gold, an officially issued coin or note, or a deposit in a checking account or other readily liquefiable account.
2. Unit of Account – is a system of measuring the value of products as well as keeping track of the debts and loans in an economy.
3. Store of Value – allows individuals to put money into accounts that allow growth and compensation for increases in the price level due to the time value of money.
4. The Stock Market - represents an equity-finance investment in a business/firm that reflects partial ownership in that company.
5. The Bond Market - represents a debt-finance investment in a government or company, that reflects money loaned at a generally fixed interest rate.
6. M1 is the narrowest definition of money supply. It includes currency (coins + paper money) and checkable deposits (demand deposits in banks or thrifts).
7. M2includes M1 plus near-monies (highly liquid financial assets which do not directly function as a medium of exchange but can be readily converted into currency or checkable deposits without risk of financial loss). Near-monies are noncheckable savings accounts, money market deposit accounts, small time deposits, and money market mutual funds.
8. Fractional Reserve System - says that since banks lend their excess reserves, a system of banks will “magnify” original excess reserves into a larger amount of new demand-deposit money, causing the money supply to grow by more than the original excess reserves.
   * For example, if someone deposited $100 into a bank, and the required reserve ratio was 0.2, then the bank’s excess reserves would increase by $80, and since the money multiplier is 1/0.2=5, the money supply will be increased by 80\*5=400.
9. Money Demand - is the desire to hold a financial asset in the form of money: that is, cash or bank deposits. It can refer to the demand for money narrowly defined as M1 (non-interest-bearing holdings), or for money in the broader sense of M2
10. Loanable Funds Market - is the market in which those who want to save supply funds and those who want to borrow to invest demand funds.
11. Money Stock - is the total supply of money in circulation.

*Central Bank and Control of the Money Supply*

*Monetary Policy*

1. Monetary policy is the decisions made by the Federal Reserve to influence the money supply.
2. The Board of Governors of the Federal Reserve System (“Fed”) is responsible for controlling the U.S banking system (and the money supply).
3. The Board of Governors has 7 members, appointed by the President with confirmation of the Senate.
4. The BOG directs the activities of the 12 Federal Reserve Banks, which then control the nation’s banks.
5. The Federal Open Market Committee (FOMC) is made up of the 7 members of the BoG plus 5 of the presidents of the Federal Reserve Banks.
   * The FOMC sets the Fed’s monetary policy and directs open market operations.

*Tools of Monetary Policy*

Three tools:

1. Open-Market-Operations - these are the most important means the Fed as to control the money supply. It refers to the buying and selling of government bonds (securities) by the Federal Reserve Banks. Buying bonds increases the money supply; selling them decreases it.
2. Reserve Requirements - the Fed can also increase or decrease the Reserve ratio. Increasing the Reserve ratio decreases banks’ excess reserves, causing the money supply to decrease. Decreasing it increases banks’ excess reserves, increasing the money supply. This is really powerful, and so it is not used very often.
3. Discount Rate - the rate that Federal Reserve Banks charge for loans to commercial banks. When commercial banks borrow from FRBs, their reserves increase. Therefore, if the discount rate increases, banks are less encouraged to borrow.

*Real vs. Nominal Interest Rates*

1. **Nominal interest rates** are rates that have no inflation factored in.
2. Real Interest Rates are rates that have inflation already factored in.

**V. Inflation, Unemployment and Stabilization Policies**

Fiscal Policy

Inflationary Situation

1. The government has two tools for regulating fiscal policy: a change in government spending or changes in taxes. The government can also use both if it thinks the economy needs it.
2. If the inflation is demand-pull inflation, the government should use a Contractionary fiscal policy.
3. It can decrease government spending, increase taxes, or both.
4. The government is aiming for a budget surplus, where tax revenues are larger than government spending. Both
5. increased taxes and decreased government spending reduces consumption spending, which causes a decrease in aggregate demand.
6. Then, if prices are flexible downward, the decrease in aggregate demand causes the equilibrium price level to decrease, ending the inflation.
7. If prices are not flexible downward, the policy will stop price level from increasing. Since inflation usually occurs in the vertical range of the aggregate supply curve, GDP shouldn’t decrease by much.

Recessionary situation

1. The government now needs to use an expansionary fiscal policy. The aim of the policy is to increase aggregate demand, which shifts the AD curve to the right and will cause an increase in real GDP.
2. The government has two tools to use: it can increase government spending or decrease taxes (or both). Increasing government spending will increase aggregate demand (since AD=C+Ig+G+Xn). Decreasing taxes will increase consumption spending (it increases it by the tax increase times the MPC), which will also increase aggregate demand.
3. Then, since aggregate demand is increased (rightward shift of AD curve), equilibrium GDP will either increase (if the economy is in the horizontal or intermediate ranges) or stop declining (if the economy is in the vertical range).
4. If the economy is on the horizontal range, the full effect of the multiplier will be felt: when AD increases by an amount, GDP will increase by the multiplier times that amount.
5. The final equilibrium will have a higher GDP and the same or slightly increased price level since recession usually means the horizontal range of the AS curve.

Impact of policies on AD/AS equilibrium

1. An expansionary fiscal policy shifts (or tries to shift) the Aggregate Demand curve to the right. This will shift the equilibrium GDP up (as long as the economy isn’t in the vertical range) and shift the price level up (as long as the economy isn’t in the horizontal range).
2. Usually, the government uses an expansionary fiscal policy when the economy is in the horizontal range, so the policy only shifts equilibrium GDP up.
3. A Contractionary fiscal policy shifts the Aggregate Demand curve to the left. This will lower equilibrium price level (when it’s not in horizontal range) and lower equilibrium GDP (when it’s not in vertical range). However, the economy is usually in the vertical range when the government uses this policy, so the policy usually only shifts price level down.
4. G vs. C, I G can be directly changed “on whim”, since fiscal policy can quickly be enacted to change government spending. However, C and I are much more uncontrollable, since they both depend on confidence, which is a hard thing to change.
5. They both, however, increase aggregate demand, and increase GDP by the amount times the multiplier.

Issue of Debt and Deficits

1. Deficit spending is expansionary, and it counters recession.
2. There’s two ways of financing a deficit:
   1. The government can enter the money market and borrow, competing with private business borrowers for funds. This might cause a crowding-out effect, “taking up” some space for investment spending and consumer spending. The crowding-out effect reduces the expansionary impact of the deficit spending.
   2. The government can also make more money, making spending increase without any harm done to investment. However, making more money can have an inflationary effect too.
3. To counter demand-pull inflation, fiscal policy has to involve making a budget surplus.
4. However, a surplus can do one of two things: debt reduction (paying off debt, but then it might offset the anti-inflationary impact because the government is putting money back into circulation), or impounding (keeping the surplus funds, doing nothing with them; this way, the full extent of the anti-inflationary policy will be met). Debt can actually be inflationary because if the government tries to pay it off quickly, there will be inflation because the money supply increases.
5. Crowding Out Effect If the government were to finance a deficit (expansionary fiscal policy) by entering the money market and borrow money, it would make less room for investment, since as the government’s share of the “pie” grows, everyone else’s becomes smaller.
6. Then, investment spending decreases, causing aggregate expenditures to not increase as much.

Balanced Budget Multiplier

1. Equal increases in government spending and taxation increase the equilibrium GDP.
2. If G and T are both increased by an amount, the equilibrium GDP will rise by the same amount, regardless of what the multiplier is.
3. This happens because a change in government spending has more of an impact on AE than a tax change.
4. This is because government spending has a direct effect on AE, i.e. a $20 increase in government spending will result in a $20 increase in AE.
5. However, since if people are taxed, their consumption only decreases by a fraction of the tax (since the tax affects both savings and consumption).
6. For example, a $20 increase in taxes in an economy with a MPC of .75 only results in $15 added to AE. Then, let’s look at how much these values affect equilibrium GDP. Since the multiplier is 4, the $20 increase by GDP results in a $80 increase in GDP. Also, the $15 decrease by taxes results in a $60 decrease in GDP. Therefore, the net increase in GDP is 80– 60 which is $20, the same as how much G and T were changed.

Monetary Policy

1. Who controls? The Board of Governors of the Federal Reserve System (“Fed”) is responsible for controlling the U.S banking system (and the money supply). The Board of Governors has seven members, appointed by the President with confirmation of the Senate. It directs the activities of the 12 Federal Reserve Banks, which then control the nation’s banks.
2. The Federal Open Market Committee (FOMC) is made up of the 7 members of the Board of Governors plus 5 of the presidents of the Federal Reserve Banks. It sets the Fed’s monetary policy and directs open-market operations.
3. Required reserve ratio This is how much percent of a bank’s reserves must keep on deposit with the Federal Reserve Bank or as vault cash.
4. Money multiplier - since banks lend their excess reserves, a system of banks will “magnify” original excess reserves into a larger amount of new demand-deposit money, causing the money supply to grow by more than the original excess reserves. MM = 1/RRR
5. The maximum demand-deposit creation (money created) equals the excess reserves that can be lent out by commercial banks times the money multiplier.
6. For example, if someone deposited $100 into a bank, and the required reserve ratio was 0.2, then the bank’s excess reserves would increase by $80, and since the money multiplier is 1/0.2=5, the money supply will be increased by 80\*5=400.
7. If the Fed buys or sells securities to the public, the money supply will increase/decrease less than if the Fed buys or sells them to banks. This is shown in the following examples:
   1. Let’s assume that the required reserve ratio is 0.2. The money multiplier is then 5. If the Fed buys $1000 worth of securities from commercial banks, the excess reserves will increase by $1000. Then, the money supply will increase by $1000\*5=$5000. If they buy securities from the public, the public gets more money, and when they deposit it into banks (whether directly or indirectly), bank reserves increase. However, since the required reserve ratio is 0.2, the bank needs to put $200 of the money in the Federal Reserve Bank, and so excess reserves only increase by $800. Then, the money supply will increase by $800\*5=$4000.
   2. If the Fed sells $1000 worth of securities to commercial banks, then excess reserves will decrease by $1000, so the money supply will decrease by $1000\*5=$5000. If the Fed sells $1000 of securities to the public, then after the transaction is cleared, the bank will have $1000 less in securities. $200 of that money can be taken from Federal reserves, and so excess reserves only decrease by $800, causing the money supply to decrease by $800\*5=$4000.
   3. Checking account money Most of it comes from demand deposits, which are deposits in commercial banks that are meant to be checkable.

M1, M2,

1. M1 is the narrowest definition of money supply. It includes currency (coins + paper money) and checkable deposits (demand deposits in banks or thrifts).
2. M2 includes M1 plus near-monies (highly liquid financial assets which do not directly function as a medium of exchange but can be readily converted into currency or checkable deposits without risk of financial loss). Near-monies are noncheckable savings accounts, money market deposit accounts, small time deposits, and money market mutual funds.

**VI. Economic Growth and Productivity**

Productivity

1. Productivity - is the relationship between inputs and outputs from production.
2. Human Capital - is the knowledge and skills that workers acquire through education, training, and experience.
3. Renewable Resources - are natural resources that can be reproduced.
4. Nonrenewable Resources - are natural resources that are limited in supply.
5. Technological Knowledge - reflects the society’s understanding about the best ways to produce goods and services.

**VII. Open Economy: International Trade and Finance**

Balance of Trade

1. If exports exceed imports, you get a trade surplus which is considered a “favorable balance of trade”.
2. If imports exceed exports, you get a trade deficit which is considered an “unfavorable balance of trade”.
   * A “favorable” balance of trade is not entirely good, however. We cannot buy as much foreign goods now (since our dollar is worth less) so foreign companies don’t get as much business from us.
   * However, when foreign prices rise, Americans turn to American companies to buy things from, helping American companies make more money.
   * Likewise, a “unfavorable” balance of trade isn’t entirely bad either. Since our dollar has grown in value, we can buy more foreign goods, so foreign companies get more money.
   * However, because of cheaper foreign goods, American companies won’t get as much business (or they have to lower prices), so they don’t get as much money.

Exchange rates

1. When the currency depreciates, then American goods seem cheaper to foreigners, so they will buy more, increasing exports, and making the trade balance “more favorable”.
2. Likewise, when the currency appreciates, American goods seem more expensive to foreigners, and foreign goods seem cheaper to Americans, so imports increase and the trade balance becomes “less favorable”.

Key Formulas

1. Y = C + I + G + NX – the spending approach to calculating GDP.
2. S = I in a closed economy (no trade) and S = I + NX in an open economy
3. Calculating Nominal GDP: Multiple the number of each good produced times the price of each good: Photdog\*Qhotdog + Phamburger\*Qhamburger.
4. Calculating Real GDP: this proceeds just as calculating nominal GDP, but instead of current prices you use base prices: Photdog(base year)\*Qhotdog(current year) + Phamburger (base year)\*Qhamburger (current year). Side implications: In the base year Nominal GDP = Real GDP, with inflation Nominal GDP > Real GDP.
5. GDP deflator: A measure of the cost of living (substitute for the CPI). GDP deflator = (Nominal GDP/Real GDP)\*100. Remember that this is an index. Side implication: In the base year the GDP Deflator = 100.
6. Constructing the CPI: step 1: compute the cost of a market basket in each year (prices times quantities), step 2: choose a base year. Step 3: Calculate the CPI for the current year by: (Cost current year)/(cost in base year)\*100. Side implication: in the base year the CPI = 100. With inflation, CPI increases.
7. The inflation rate via the CPI: (CPI current year – CPI previous year)/CPI previous year all times 100. Note that this is just a percentage change. The inflation rate is the percentage change in the CPI from one period to the next. You could also calculate the percentage change in the GDP (implicit) price deflator from year to year to derive at an alternative measure of inflation.
8. Correcting for inflation: Let’s adjust for inflation so we can, in a more meaningful way, compare the dollar values of different points in time. Convert a figure in 1990 to its current value: current value = value in 1990 \* (CPI in 2000/CPI in 1995). For example, Babe Ruth earned $80,000 in 1931. Translating to current dollars means: current value = 80,000 \* (107.6/8.7) = $989,000. So $80,000 back then is equivalent to $989,000 today…THIS ONE IS CRUCIAL!!!!!!
9. Real interest rate = nominal interest rate – inflation rate.
10. Unemployment Rate = (Number of Unemployed/Labor Force)\*100. Key, first get the labor force – all the folks who are actively seeking employment!
11. Labor force participation rate: (Labor force/adult population)\*100.
12. Money Multiplier = 1/R where R = reserve ratio. Application: an initial injection of $1000 of new money into an economy with a reserve ratio of 10% (.1) will generate $1000\*(10) = $10,000 in total money.
13. Quantity equation of money: MV = PY – a moneterist’s view of what explains changes in P (they are correct, in the long run changes in P is driven by changes in M because V is stable and Y is determined outside the model). If given three of the four variables, you should be able to use this equation to find the unknown variable.
14. Spending Multiplier = 1/(1 – MPC) OR 1/MPS.
    1. It tells you how much total spending an initial injection of spending in the economy will generate.
    2. For example, if the MPC = .8 and the government spends $100 million, then the total increase in spending in the economy = $100 \* 5 = 500 million.
15. Tax Multiplier = MPC/MPS
16. Marginal Propensity to Consume = Change in Consumption/Change in Income
17. Marginal Propensity to Save = Change in Savings/Change in Income

Key Definitions in Alphabetical Order:

1. Aggregate demand: A schedule or curve which shows the total quantity of goods and services demanded (purchased) at different price levels.
2. Aggregate supply: the total amount spent for final goods and services in the economy.
3. Absolute advantage: the comparison among producers of a good according to their productivity (NOT their opportunity costs).
4. Allocative efficiency: the apportionment of resources among firms and industries to obtain the production of the products most wanted by society (consumers); the output of each product at which its marginal cost and price (marginal benefit) are equal.
5. Automatic stabilizers: changes in fiscal policy that stimulate AD when the economy goes into a rece4ssion without policymakers having to take any deliberate action.
6. Business cycle: recurrent ups and downs over a period of years in the level of economic activity.
7. Capital: human-made resources (machinery and equipment) used to produce goods and services; goods which do not directly satisfy human wants.
8. Catch up effect: the property whereby countries that start off poor tend to grow more rapidly than countries that start off rich.
9. Ceteris paribus: "other things equal" used as a reminder that all variables other than the ones being studied are assumed to be constant.
10. Circular flow diagram: a visual model of the economy that shows how dollars flow through markets among households and firms.
11. Classical dichotomy: the theoretical separation of nominal and real variables.
12. Comparative advantage: a lower relative cost than another producer.
13. CPI: an index which measures the prices of a fixed market basked of consumer goods bought by a typical consumer.
14. Consumption schedule (curve): a schedule showing the amounts households plan to spend for consumer goods at different levels of income.
15. Contractionary fiscal policy: a decrease in AD brought about by a decrease in government spending for goods and services, an increase in net taxes, or some combination of the two.
16. Contractionary monetary policy: a decrease in AD brought about by a decrease in the money supply, which in turn results from the Fed selling government securities, increasing the discount rate, or increasing the reserve requirement.
17. Cost push inflation: inflation resulting from a decrease in AS (from higher wage rates and raw material prices) and accompanied by a decrease in real output and employment.
18. Crowding out effect: the rise in interest rates and the resulting decrease in investment spending in the economy caused by increased borrowing in the money market by the government.
19. Cyclical unemployment: Unemployment caused by insufficient AD.
20. Demand deposit: a deposit in a commerical bank against which checks may be written.
21. Demand pull inflation: inflation resulting from an increase in AD
22. Depreciation of the dollar: a decrease in the value of the dollar relative to another currency; a dollar now buys a smaller amount of the foreign currency.
23. Discount rate: the interest rate which the FED charge on the loans they make to commercial banks.
24. Economic efficiency: getting the most from our scarce resources: for a given amount of input producing the greatest amount of goods and services. Or, producing a certain amount of goods and services with the least amount of inputs.
25. Economic resources: land, labor, capital, and entrepreneurial ability which are used in the production of goods and services.
26. Equality versus efficiency tradeoff: the decrease in economic efficiency which may accompany a decrease in income inequality.
27. Equity: the property of distributing economic prosperity fairly among the members of society.
28. Excess reserves: the amount by which a bank’s actual reserves exceeds its required reserves.
29. Expenditures approach: the method which adds all the expenditures made for final goods and services to measure the GDP (the alternative is to add up incomes – the income approach).
30. Exports: goods and services produced in a nation and sold to customers in other nations.
31. Fallacy of composition: incorrectly reasoning that what is true for the individual (or part) is therefore necessarily true for the group (or whole)
32. Federal funds rate: the interest rate banks charge one another on overnight loans made out of their excess reserves.
33. Fiat money: anything that is money because government has decreed it to be money (it has no intrinsic value)
34. Fiscal policy: changes in government spending and tax collections designed to achieve a full employment and noninflationary domestic output.
35. 45 degree line: a line along which the value of the GDP (measured horizontally) is equal to the value of Aggregate expenditures (measured vertically). All points on this line are equilibrium points!
36. Fractional reserve banking: a banking system in which banks hold only a fraction of deposits as reserves.
37. Frictional unemployment: unemployment caused by workers voluntarily changing jobs and by temporary layoffs; unemployed workers "between jobs"
38. Full employment: when the unemployment rate is equal to the full employment unemployment rate there is only frictional and structural unemployment; cyclical unemployment equals zero. At this point we are also at potential output.
39. GDP: the total market value of all final goods and services produced during a given time period within the boundaries of the U.S., whether by American or foreign-supplied resources.
40. GDP deflator: the price index for all final goods and services used to adjust the money GDP into real GDP. (a substitute for the CPI).
41. GNP: the total market value of all final goods and services produced within a given time period by American residents, whether these people are located in the U.S. or abroad.
42. Imports: spending on goods and services produced in a foreign nation.
43. Inflation: a rise in the general level of prices in the economy (percentage change in either the CPI or the GDP deflator)
44. Investment: spending on capital equipment, inventories, and structures. NOT the purchase of financial assets (stocks and bonds).
45. Invisible hand: the tendency of firms and households seeking to further their self interests in competitive markets to further the best interest of society as a whole.
46. Productivity: total output divided by the quantity of labor employed to product the output.
47. Law of increasing opportunity cost: as the amount of a product produced is increased, the opportunity cost of producing an additional unit of the product increases.
48. Liquidity: money or things which can be quickly and easily converted into money with little or no loss of purchasing power.
49. LRAS: the AS curvfe associated with a time period in which input prices and output prices move freely.
50. M1: the narrowly defined money supply; currency and checkable deposits.
51. M2: a more broadly defined money supply; equal to M1 plus noncheckable savings deposits, money market deposits, mutual funds, and small time deposits.
52. M3: very broadly defined money supply: includes M2 plus large time deposits.
53. Macroeconomics: the study of economy-wide phenomona, including inflation, unemployment, and economic growth.
54. Marginal analysis: decision making which involves a comparison of marginal (extra) benefits and marginal costs.
55. Marginal propensity to consume (MPC): fraction of any change in income spent for goods and services; equal to the change in consumption divided by the change in disposable income.
56. Marginal propensity to save (MPS): fraction of any change in income that is saved; equal to the change in savings divided by the change in disposable income.
57. Menu costs: the costs of changing prices
58. Microeconomics: the part of economics concerned with such individual units within the economy as Industries, firms, and households; and with individual markets, particular prices, and specific goods and services.
59. Monetary neutrality: the proposition that changes in the money supply do not affect real variables
60. Moneterism: the macroeconomic view that the main cause of changes in aggregate output and the price level are fluctuations in the money supply; advocates a monetary rule.
61. Monetary policy: changing the money supply to assist the economy to achieve a full employment, noninflationary level of total output.
62. Money: any item which is generally acceptable to sellers in exchange for goods and services.
63. Natural rate hypothesis: the idea that the economy is stable in the long run at the natural rate of unemployment; views the long run Philips curve as vertical at the natural rate of unemployment.
64. Normative economics: that part of economics pertaining to value judgements about what the economy *should* be like; concerned with economic goals and policies.
65. Okun’s law: the generalization that any one percentage point rise in the unemployment rate above the full employment unemployment rate will increase the GDP gap by 2.5 percent of the potential GDP of the economy. So…start in long run equilibrium – as the unemployment rate increases by 1% we see GDP growth decrease by 2.5 percent.
66. Opportunity cost: the amount of other products which must be forgone or sacrificed to produce a unit of a product.
67. Philips curve: a curve showing the relationship between the unemployment rate and the inflation rate. In the short run it shows a negative (inverse) relationship. In the long run there is no relationship.
68. Positive economics: the analysis of facts or data to establish scientific generalizations about economic behavior (as opposed to normative economics).
69. Potential GDP: the real output an economy is able to produce when it fully employs its available resources.
70. Production possibilities frontier: a graph that shows the various combinations of output that the economy can possibly produce given the available factors of production and the available production technology.
71. Productive efficiency: the production of a good in the least costly way (minimum ATC)
72. Rational expectations theory: the hypothesis that business firms and households expect monetary and fiscal policies to have certain effects on the economy and take, in pursuit of their own self interests, actions which make these policies ineffective.
73. Shoeleather costs: the resources wasted when inflation encourages people to reduce their money holdings and make trips to the bank more frequently.
74. Stagflation: inflation accompanied by stagnation in the rate of growth of output and a high unemployment rate in the economy. Caused by a decrease in AS.
75. Structural unemployment: unemployment caused by changes in the structure of demand for goods and in technology; workers who are unemployed because their skills are not demanded by employers, they lack sufficient skills to obtain employment, or they cannot easily move to locations where jobs are available.
76. Terms of trade: the rate at which units of one product can be exchanged for units of another product; the amount of one good or service given up to obtain one unit of another good or service